CLAIMS

1. A process for manufacturing a composite material comprising:

pre-impregnating a first filament band with a resin that is solid or semi-solid at ambient temperatures;

winding the first filament band at a first angle;

pre-impregnating a second filament band with a resin that is solid or semi-solid at ambient temperatures;

winding the second filament band in a second direction, wherein the second angle has an intersecting orientation with the first angle, such that the first filament band and the second filament band form a composite material.

2. The process, as recited in claim 1, wherein the intersecting orientation of the first angle and the second angle is substantially perpendicular.

3. The process, as recited in claim 1, wherein the composite material is wound on a rotating mandrel.

4. The process, as recited in claim 1, wherein the orientation of the filament bands is controlled by a filament application section of a filament winding machine.

5. The process, as recited in claim 4, wherein the application section impregnates the filament bands with the resin.

6. The process, as recited in claim 1, wherein the first filament band and the second filament band have a plurality of overlapping locations.

7. The process, as recited in claim 6, wherein an effective amount of resin is present in the overlapping locations.

8. The process, as recited in claim 1, wherein the first filament band and the second filament band are impregnated with a substantially similar quantity of resin.

9. A process for manufacturing a composite component comprising:

determining load requirement for the component;

identifying the number of layers and orientation of filament bands to meet load requirements for the component;

creating a manufacturing control plan; and

winding a plurality of filament bands on a mandrel, wherein the plurality of filament bands are pre-impregnated with a resin that is solid or semi-solid at ambient temperatures, the plurality of filament bands being wound according to the manufacturing control plan, such that the number of layers and orientations of filament bands create a pre-form for the component.

10. The process, as recited in claim 9, wherein the filament bands are wound into a plurality of layers having at least three different filament band orientations.

11. The process, as recited in claim 9, further comprising cutting the pre-form from the composite material.

12. The process, as recited in claim 11, further comprising curing the pre-form on a shape defining form.

13. The process, as recited in claim 9, wherein a plurality of performs are simultaneously wound.

14. The process, as recited in claim 9, wherein the pre-form is wound in a sheet of composite material.